

REMARKS

In response to the Examiner's comments, claims 1, 26 and 30 have been amended, and claims 27 – 29 have been cancelled. No new subject matter has been added.

Claims Rejections

35 U.S.C. 102(b) Rejection

The Examiner takes the position that claims 1, 2, 5, 10 and 11 are unpatentable over U.S. Patent No. 4,342,931 issued to Grossmann. The Examiner takes the position that Grossmann discloses a switch mechanism for use in a power tool having a motor 44 and at least two operable directions, comprising a first switch 10, 12 having an ON and an OFF position to selectively actuate the motor; a second switch 28, 16, 36, 68 to select between the directions, the second switch further comprising a neutral position (Fig. 2) in which neither of said directions is selected; a first portion 38 of the first switch 12 being adapted to abut a first portion, namely the left edge of pin 36, of the second switch when the second switch is in the neutral position and the first switch is in said OFF position; the abutment of the respective first portions 36, 38 preventing displacement of said first switch to said ON position until said second switch is displaced to a position other than said neutral position; and a second portion 40 of the first switch being adapted to abut a second portion, namely the top side of pin 36, of the second switch when the first switch is in said ON position and said second switch is in a position other than said neutral position, the abutment of respective second portions preventing displacement of the second switch to the neutral position until the first switch is displaced to the OFF position.

Reconsideration in view of the claims as amended is respectfully requested for the reasons set out below.

Grossmann's first and second switches are illustrated as being positioned quite close to each other. Such a configuration is necessary to allow reversing switch 14 to properly operate motor 44. In contrast, the present invention configures the first and second switches in opposed relation across the handle, which makes both switches accessible and easy and ergonomic to use without causing the user hand fatigue, as described at paragraph 0047 of the present application as published. In order to access the second switch of the Grossmann configuration, one would need to remove a finger or thumb from the trigger, or use the other hand, in either case essentially reaching blind to move the switch on the underside of the power tool. This can be merely awkward, or can be extremely dangerous to the user. It may also prove nearly impossible to do if, for example, the user is wearing heavy protective gloves. Any larger hand size or gloved hand applied to the trigger of Grossmann may completely block the user's access to the sliding switch of Grossmann. The present invention provides a second switch in plain view, which is easily accessed and may be operated by the thumb of the same hand which operates the first switch, whether or not the user is wearing protective gloves.

Claim 1 of the present invention has therefore been amended to specify that the power tool also comprises a handle and that the second switch is mounted across the handle, in opposed relation to, the first switch.

In addition, the abutment of the first portions of the switches in the present invention is quite different than that disclosed in Grossmann. The pin 36 in Grossmann's second switch abuts the central portion of the first switch in a direction perpendicular to the elongated axis of the pin 36, and perpendicular to the direction of motion of the first switch. In contrast, the present invention provides first and second switches, each with

an abutment which extends generally toward the other abutment in generally opposed, parallel relationship. The second abutment is displaceable by movement of the second switch between a first position in which the abutments are in end to end contact when the second switch is in the neutral position, and second and third positions in which the abutments are in side to side contact when the second switch is in a position other than the neutral position. The contact between of the abutments ensure that solid contact is made between the two switches, providing secure and stable locking of the switches in the selected position, and preventing accidental operation of the power tool (due to the end to end contact) or inadvertent switching of the direction of operation (due to the side to side contact). This arrangement is far more stable and effective at preventing accidental operation than does abutment between the knife edge of the trigger's central portion and the rounded periphery of pin 36 as disclosed by Grossmann. Claim 1 has been amended to more clearly distinguish the invention over Grossmann by specifying that the switch mechanism also comprises "first and second abutments extending generally toward one another in generally opposed, parallel relationship, said second abutment being displaceable by movement of said second switch between a first position in which said first and second abutments are in end to end contact when said second switch is in said neutral position, and second and third positions in which said first and second abutments are in side to side contact when said second switch is in a position other than said neutral position".

The applicant respectfully submits that claim 1 as amended now clearly distinguishes the present invention from that taught in Grossmann. As claims 5 and 11 are dependent on claim 1, the applicant respectfully submits that these dependent claims are also allowable over Grossmann.

Regarding claim 2 in particular, the Examiner has taken the position that the second switch is external U-shaped sliding switch 28 and internal switch 14 (Fig. 4).

As claim 2 is dependent on claim 1, the applicant respectfully submits that this dependent claim is also allowable over Grossmann.

In addition, claim 2 specifies that the external sliding switch of the second switch has “an approximately inverted U-shaped” configuration. In contrast, Grossmann clearly shows only a non-inverted U-shaped switch, as in Fig. 1. Grossmann does not teach inverting this switch, nor would it be obvious to do so, since that arrangement would make the switch difficult to manipulate. Because Grossmann’s switch is located on the underside of the power tool, a user would have to insert his fingers into the hollow of an inverted U to move the switch, rather than being able to feel the thumbpad of the non-inverted U-shaped switch disclosed by Grossmann. While theoretically possible, this arrangement is not practical or convenient for the user.

Claim 2 of the present invention further claims a second switch comprising “an internal switch”. The Examiner has taken the position that this internal switch is double pole reversing switch 14. The Applicant respectfully disagrees. While switch 14 is internal to the power tool, it clearly does not comprise part of the second switch. In rejecting claim 1, the Examiner defined Grossmann’s second switch as comprising slide member 28, lever 16, protrusion 36 and upwardly disposed member 68. Reversing switch 14 is clearly separated from each of those parts, and is in fact defined as being “within the housing of the trigger switch 10” (col. 4, lines 34, 35), which the Examiner has defined (in relation to the rejection of claim 1) as being part of the first switch. The lever 16 is separately attached to the housing via a pivot point 18. It is therefore submitted that Grossmann does not disclose a “switch mechanism of claim 1 wherein said second switch comprises... an internal switch” as claimed in claim 2 of the present invention. Nor would such a configuration be an obvious modification of the Grossmann arrangement because of the interposition of the trigger switch housing 10.

It is therefore submitted that claim 2 of the present application is novel and obvious over Grossmann.

Regarding claim 10, the Examiner has taken the position that the switch mechanism, comprising the first and second switches, has end blocks 28, 12 and operating rods 76, 16.

As claim 10 is dependent on claim 1, the applicant respectfully submits that this dependent claim is also allowable over Grossmann.

In addition, the Examiner has defined the end blocks claimed as being 28 and 12, namely the first and second switches. The Examiner has also defined the operating rods as thin side walls 76 and lever 16. These parts clearly are not encompassed by the claim, which reads "one or more pairs of rods separating the end blocks". Thin side walls 76 are clearly not rods, while lever 16 is not part of a pair. Lever 16 further does not operate to separate the end blocks, even assuming switch 28 and trigger 12 could be interpreted as end blocks which are part of "a mounting mechanism to secure the switch mechanism in place", as claimed in claim 10.

It is therefore submitted that claim 10 of the present application is novel and obvious over Grossmann.

35 U.S.C. 103(a) Rejection

The Examiner has rejected 3, 4, 6 - 9 and 12 - 43 as being unpatentable over Grossmann in view of U.S. Patent No. 5,380,971 to Bittel.

Claims 3, 4, 6 – 9 and 12 – 25 are ultimately dependent on claim 1. As discussed above, it is submitted that claim 1 is patentably distinguished over Grossmann. As Bittel is directed solely to the dynamic brake switch for a motor, rather than to a switch mechanism, Bittel does not teach or lead to the elements of claim 1, as amended. It is therefore submitted that these dependent claims are unobvious and patentable over Grossmann in view of Bittel.

Claim 26 recites a switch mechanism for use in a power tool with a motor and a dynamic brake and at least two operable directions comprising a first switch having an ON and an OFF position to selectively actuate said motor; and a second switch to select between said directions, said second switch further comprising a neutral position in which said dynamic brake is engaged. The Examiner has taken the position that each element of the claim is disclosed by Grossmann, with the exception of the dynamic brake, but that it would be obvious to modify Grossmann by adding the dynamic brake disclosed in Bittel.

However, neither Grossmann nor Bittel nor the two combined disclose or suggest the “false neutral” feature of the present invention claimed in claim 26, in which the second switch has “a neutral position in which said dynamic brake is engaged”. In a typical prior art power tool including a dynamic brake, release of the trigger will move the electric contacts from a first position in which the motor is engaged, to a second position in which the dynamic brake is engaged. This series of steps is clearly disclosed in the operation of Bittel’s dynamic brake switch, best illustrated in Figs. 2 – 4. On release of trigger 10, the dynamic brake is engaged because the trigger 10 slides and disconnects the motor circuit, then activates the dynamic brake by shorting the motor and completing the dynamic brake circuit. Thus, two sets of contacts are required to move before the dynamic brake is activated and the motor stops. There is no neutral position in which the

dynamic brake is engaged, and there is always a pause after release of the trigger before the dynamic brake is activated because of the need to move the contacts.

Further, even if the switch mechanism disclosed by Grossmann had a dynamic brake, the neutral position disclosed by Grossmann in Fig. 3 is not a "false neutral" position. If the sliding switch is positioned in the central or neutral position, the motor is disengaged, as would be expected in the typical prior art power tool. If the sliding switch is in one of its other positions, the motor is engaged. There is no switch position in Grossmann which appears to be neutral, and yet in which current still flows, enabling a dynamic brake to operate. The cavity 26 in the sliding switch 28 is illustrated as being approximately the same size as the downwardly projecting pin 24, thus leaving no room for a false neutral switch position.

In contrast, the second switch of the present invention has a central position which appears to be neutral, and therefore disengaged, but the dynamic braking system is instead constantly active, making the tool much safer to use. This is achieved through the contact arrangements best shown in Figs. 9 and 10. The sliding switch 20 is able to move to a central, neutral position without moving the internal switch 32 or 54, which would disconnect the electrical contacts 44 within the switch. Although the tool appears to be in a neutral, disengaged position, power flow to the dynamic brake circuit is not interrupted because the current path required to operate the dynamic brake is maintained by the second switch. Despite the second switch maintaining a current path through the motor, the constraint of the movements of the switches from active position to OFF positions by the contact between the abutments of the switches ensures that the motor will not operate when the switch is in the OFF position. The switch must be fully displaced in the opposite operative position, in order to change the selection of internal contacts and to establish the circuit for tool operation in the opposite direction.

Claim 26 has been amended to incorporate the limitations of claims 27 – 29, which are directed to the constraintment of the first and second switches such that each can only move when the user properly manipulates the switches. Claims 27 – 29 have been cancelled. Claim 30 has been amended to correct a dependency on cancelled claim 29.

As neither Grossmann nor Bittel disclose or suggest a false neutral position in which the dynamic brake is engaged, it is therefore submitted that the invention as claimed in claim 26 is not obvious, having regard to Grossmann in view of Bittel.

The applicant respectfully submits that claim 26 as amended now clearly distinguishes the present invention from that taught in Grossmann, in view of Bittel. As claims 30 - 43 are dependent on claim 26, the applicant submits that these dependent claims are also allowable over Grossmann in view of Bittel.

Further, claims 6, 22 and 39 in particular recite a “means to bias the external sliding switch to a centred position, said centred position corresponding to said neutral second switch position”. This arrangement causes the external switch of the present invention to return to a centred position on the tool handle upon release of the tool handle. Once the second switch returns to the centred position, the second abutment is properly positioned to engage with the trigger’s abutment, automatically rendering the tool inoperable without first selecting a direction and actuating the sliding switch. Neither Grossmann nor Bittel disclose or suggest this arrangement. While Grossmann’s trigger (first switch) is likely biased to return to the OFF position upon release of the trigger, it is necessary to also slide the external switch 28 to a neutral position in order to line up the pin 36 and the front edge 38 of the partition 40 in order to prevent later operation of the tool without first selecting a direction. Failure to carry out this additional step renders the abutment between 36 and 38 inoperable, such that the tool may be actuated without selecting a direction of operation. Grossmann does not disclose any sort of means to bias the sliding

switch 28 to a central position, where the abutment would automatically be set upon release of the tool handle. Similarly, Bittel's trigger is spring biased to an OFF position, but Bittel does not suggest a second switch, and particularly not a second switch biased to a central position.

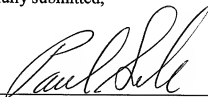
It is therefore submitted that the invention claimed and described in claims 6, 22 and 39 are allowable, as they are neither disclosed by Grossmann, nor obvious having regard to Grossmann in view of Bittel.

CONCLUSION

The Applicant submits that the claims are in condition for allowance and respectfully requests that a Notice of Allowance be issued in this case.

Date: May 3, 2006

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Paul Smith", is written over a horizontal line.

Paul Smith
Reg. No. 35,777